

B. E. BAKER.
NEBULIZER.

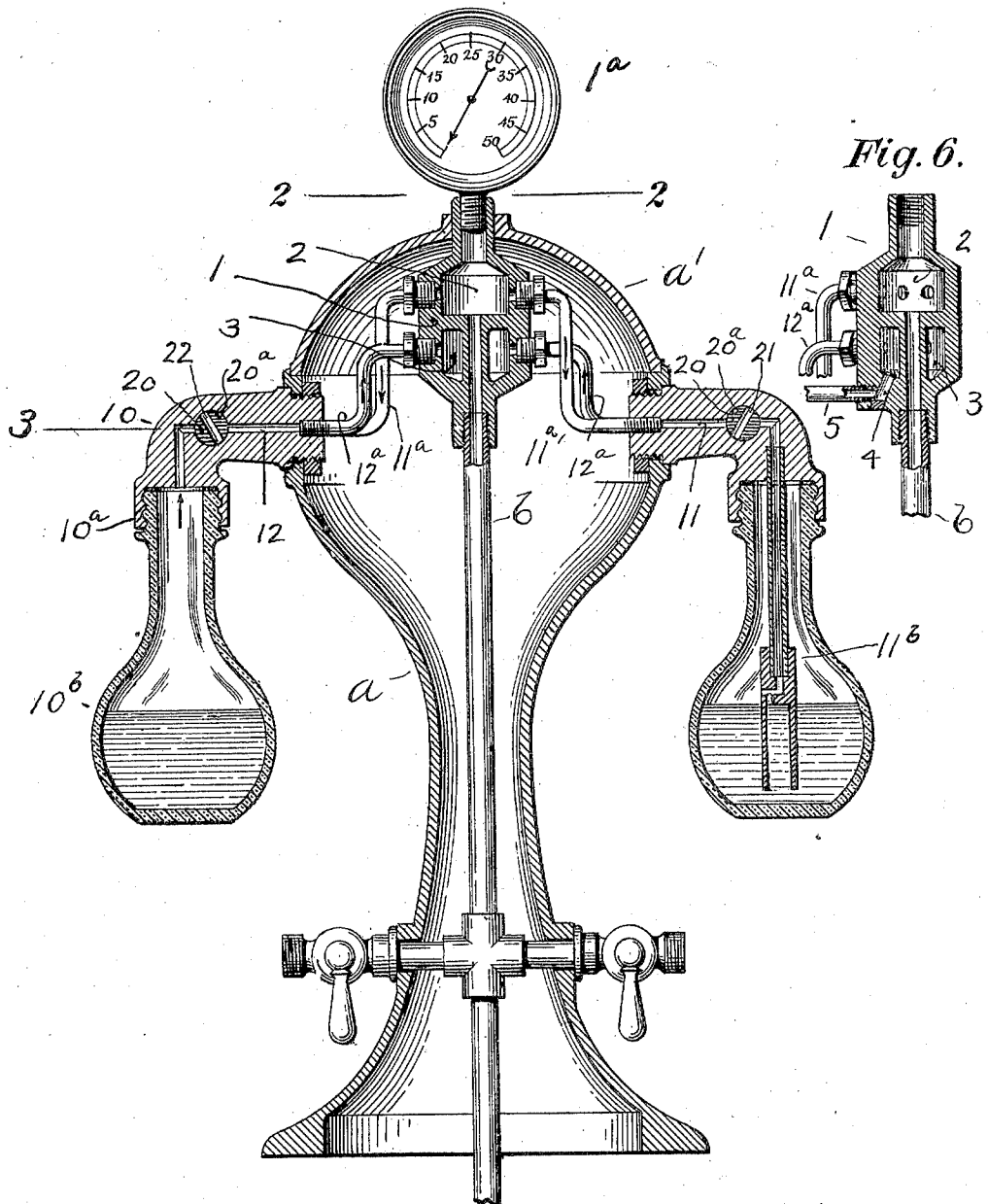
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950,738.

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2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 2.

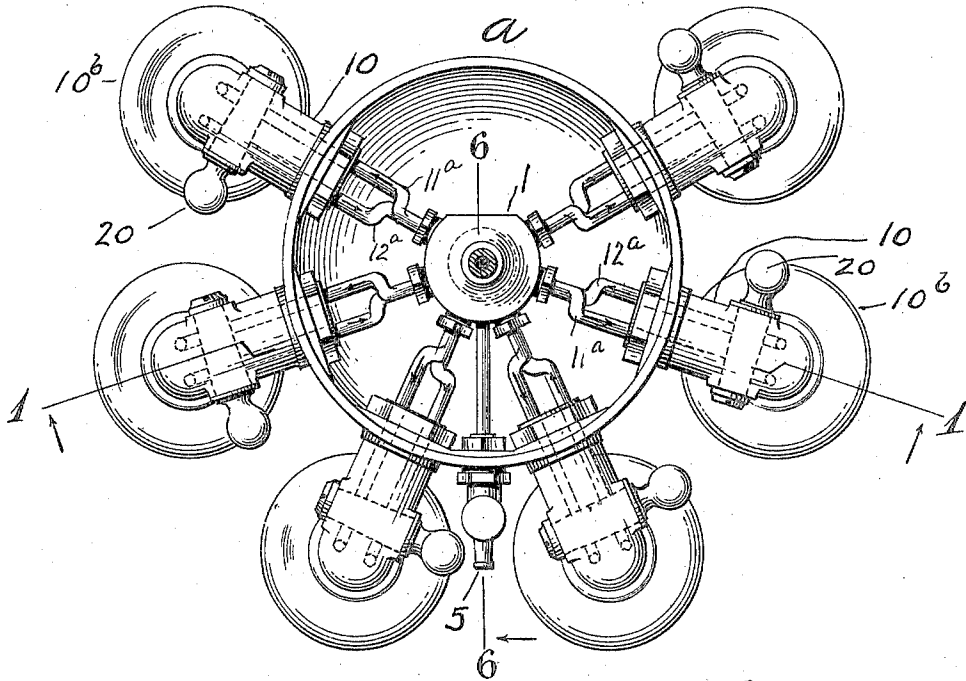


Fig. 3.

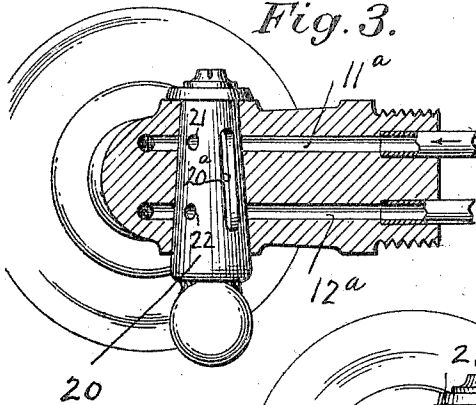


Fig. 4.

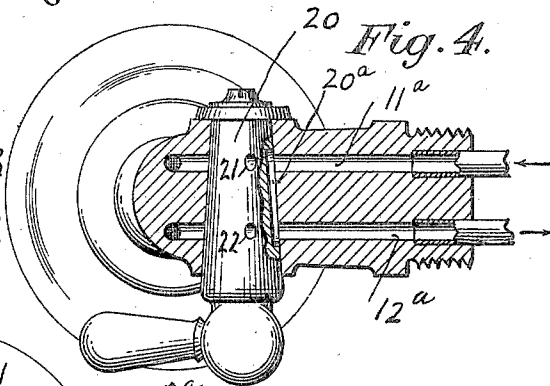
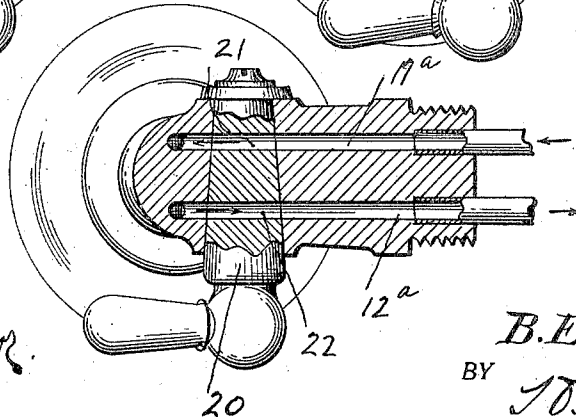


Fig. 5.



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NEBULIZER.

950,738.

Specification of Letters Patent.

Patented Mar. 1, 1910.

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To all whom it may concern:

Be it known that I, BURTON E. BAKER, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Nebulizers, of which the following is a specification.

The object of the invention is to produce a device of the class specified having features of novelty and advantage, particularly in the compactness and simplicity of its construction, and cleanliness.

In the drawings—Figure 1 is a vertical section taken on the line 1—1 of Fig. 2 looking in the direction of the arrows. Fig. 2 is a plan view of the device with the top of the casing removed. Figs. 3, 4 and 5 are details in section on line 3 of Fig. 1 showing the construction and different positions of the valve. Fig. 6 is a sectional view of the head on the line 6—6 of Fig. 2.

Referring to the drawings *a* denotes the standard or casing which is in the form of a hollow shell having a removable top *a'*. Vertically arranged within this standard is an air supply pipe *b* leading from a compressed air reservoir. To the top of this pipe is secured what I call the head 1 having a distributing chamber 2 in its upper part with a passage leading to it from the air supply pipe *b* so that the compressed air from the tank passes directly into said distributing chamber 2. A reducing valve may be inserted in the pipe *b* between the air reservoir and the head to reduce the air pressure in the distributing chamber if desired. A gage 1^a is secured to a pipe leading from the distributing chamber. In the lower part of the head is an annular mixing chamber 3, from which a passage 4 (Fig. 6) leads to a common treatment tube valve or outlet 5 (Fig. 2).

Arranged radially about the horizontal diameter of the upper part of the standard are plugs 10 having downturned internally threaded ends 10^a into which the medicament receptacles 10^b are secured. Any number of these receptacles may be utilized up to the limit of the device; six are shown in the drawings. These plugs are provided with two passages 11, 12, the first being connected by a pipe 11^a to the distributing chamber, there being a nebulizer tube 11^b secured in the plug at the other end of the passage 11 and extending down into the

receptacle, its lower end being immersed in the liquid therein. The pipe 11^a, passage 11 and tube 11^b constitute the inlet for the compressed air. The second passage 12 is connected by the pipe 12^a to the mixing chamber 3.

The plugs 10 are provided with triple-acting valves 20. In one position the solid wall of the valve cuts off the air entirely; in the second position a return-way 20^a connects the passages 11 and 12 on the head side of the valve so that the air will pass from the distributing chamber 2 through the pipe 11^a, passage 11, return-way 20^a, passage 12, pipe 12^a, mixing chamber 3, passage 4, to the treatment tube outlet 5, flushing and cleaning the mixing chamber and appurtenant parts. The third position of the valve brings the ports 21, 22, into alinement with the passages 11, 12, permitting air to enter the bottle through the passage 11 and nebulizer tube 11^b, and the nebula to pass out through the passage 12, pipe 12^a, to the mixing chamber 3, thence through the passage 4 to the treatment tube outlet 5.

It is to be noted that all receptacles are supplied with air from a common distributing chamber and that the nebula from all receptacles goes into the common mixing chamber, thus the medicaments may be administered separately or any number may be combined and mixed in the chamber 3 before they are administered.

It is to be noted that the return pipes 12^a which conduct the nebula into the mixing chamber are arranged radially about the head so that the nebula as it passes into the mixing chamber is projected against the wall of the chamber, which action tends to break up any particles of liquid that may come through with the nebula and spreads the nebula to completely fill the chamber. In a case where two or more medicaments are to be administered together the above described arrangement effects a thorough mixing of the different nebulae before they go out through the passage 4 to the treatment tube outlet 5. It will be further noted that in turning the valves from closed to open position, or vice versa, the flushing of the mixing chamber and pipes appurtenant thereto is accomplished and in the usual operation of the device the mixing chamber and appurtenant parts are necessarily flushed and cleansed by blowing out any medicament which may be

left in the parts before a new medicament can be passed through.

By my invention a compact device is provided which is convenient of manipulation, simple in its construction and effective and cleanly in its operation.

I claim:—

1. A nebulizer comprising a hollow supporting standard, a head located therein near the top thereof and embodying a distributing chamber in the upper portion thereof, a centrally-disposed passage communicating with the distributing chamber, an annular mixing chamber in the lower portion of the head surrounding said passage, an air supply pipe extending in said standard, connected to the head and opening into said passage, a plurality of laterally-extending angle-shaped plugs supported by and extending into the standard, each of said plugs formed with a pair of passages, a triple-acting valve mounted in each of the plugs and controlling the passages of its respective plug, a receptacle supported by the depending portions of each of said plugs, a nebulizing tube connected to the depending portion of each of the plugs, opening into one of the passages of the plug and extending in and communicating with the receptacle carried by the depending portion of the plug, a pipe connection between one of the passages of each of the plugs and the mixing chamber, a pipe connection between the other passage of each of the plugs and distributing chamber, said pipe connections secured to the inner end of said angle-shaped plugs, said mixing chamber having its bottom provided with an outlet, a discharge pipe communicating with said outlet and projecting from and supported by the standard.

2. A nebulizer comprising a hollow supporting standard, a head located therein near the top thereof and embodying a distributing chamber in the upper portion thereof, a centrally-disposed passage communicating with the distributing chamber, an annular mixing chamber in the lower portion of the head surrounding said passage, an air supply pipe extending in said standard, connected to the head and opening into said passage, a plurality of laterally-extending angle-shaped plugs supported by and extending into the standard, each of said plugs formed with a pair of passages, a triple-acting valve mounted in each of the plugs and controlling the passages of its respective plug, a receptacle supported by the depending portions of each of said plugs, a nebulizing tube connected to the depending portion of each of the plugs, opening into one of the passages of the plug and extending in and communicating with the receptacle carried by the depending portion of the plug, a pipe con-

nection between one of the passages of each of the plugs and the mixing chamber, a pipe connection between the other passage of each of the plugs and distributing chamber, said pipe connections secured to the inner ends of said angle-shaped plugs, said mixing chamber having its bottom provided with an outlet, a discharge pipe communicating with said outlet and projecting from and supported by the standard, the passages in each of said plugs arranged in parallelism with respect to each other.

3. A nebulizer comprising a hollow supporting standard, a head located therein near the top thereof and embodying a distributing chamber in the upper portion thereof, a centrally-disposed passage communicating with the distributing chamber, an annular mixing chamber in the lower portion of the head surrounding said passage, an air supply pipe extending in said standard, connected to the head and opening into said passage, a plurality of laterally-extending angle-shaped plugs supported by and extending into the standard, each of said plugs formed with a pair of passages, a triple-acting valve mounted in each of the plugs and controlling the passage of its respective plug, a receptacle supported by the depending portions of each of said plugs, a nebulizing tube connected to the depending portion of each of the plugs, opening into one of the passages of the plug and extending in and communicating with the receptacle carried by the depending portion of the plug, a pipe connection between one of the passages of each of the plugs and the mixing chamber, a pipe connection between the other passage of each of the plugs and distributing chamber, said pipe connections secured to the inner ends of said angle-shaped plugs, said mixing chamber having its bottom provided with an outlet, a discharge pipe communicating with said outlet and projecting from and supported by the standard, said head provided with a tubular extension projecting from the top of the standard, and constituting a pipe, and a gage secured to said pipe.

4. A nebulizer comprising a hollow standard, a head located therein near the top thereof and embodying a distributing chamber in the upper portion thereof, a centrally-disposed passage communicating with the distributing chamber, an annular mixing chamber in the lower portion of the head surrounding said passage, an air supply pipe extending in said standard, and opening into said passage, a plurality of laterally-extending angle-shaped plugs supported by and extending into the standard, each of said plugs formed with a pair of passages, a triple-acting valve mounted in each of the plugs and controlling the passage of its respective plug, a receptacle supported by

the depending portions of each of said plugs, a nebulizing tube connected to the depending portion of each of the plugs, opening into one of the passages of the plug and extending in and communicating with the receptacle carried by the depending portion of the plug, a pipe connection between one of the passages of each of the plugs and the mixing chamber, a pipe connection between the other passage of each of the plugs and distributing chamber, said mixing chamber having its bottom provided with an outlet, a discharge pipe communicating with said outlet and projecting from and supported

by the standard, said head provided with a tubular extension projecting from the top of the standard, and constituting a pipe, and a gage secured to said pipe, the passages in each of said plugs arranged in parallelism with respect to each other, and said pipe connections between the mixing and distributing chambers and said passages wholly arranged within the standard.

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Witnesses:

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